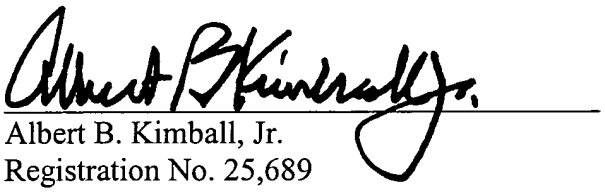
REMARKS

Prior to receiving a First Office Action, Applicants have amended the Claims in the manner indicated above. Contemporaneously, an Information Disclosure Statement is being filed including the results of a search report received in connection with an international counterpart application. One of the references is Applicant's own Master's Thesis published June 25, 2003. It is submitted that this Thesis is not prior art, since the present application was filed June 23, 2004. A Declaration identifying Applicant as the author of that Thesis is also submitted of even date.

Respectfully submitted,



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CLAIMS

1. (Amended) A method of power control for conserving energy in a facility having synchronous machines, comprising the steps of:

monitoring the incoming power to the facility;

monitoring the reactive power demand of the facility;

monitoring the operation of the synchronous machines in the facility, the step of monitoring the operation including the steps of:[;]

forming a measure of the power capability of the synchronous machines;

determining an overall power factor of the synchronous machines;

selecting an optimum operating condition [operation mode] of the synchronous machines to bring the power factor to an optimum; [and]

adjusting excitation current [parameters] of the synchronous machines based on the selected optimum operating condition by performing the steps of:

when the determined overall power factor is leading, decreasing excitation current to the synchronous machines;

when the determined overall power factor is lagging, increasing excitation current to the synchronous machines;

when the determined overall power factor is neither leading nor lagging, repeating the step of determining an overall power factor of the synchronous machines; and

repeating the step of determining the overall power factor and adjusting excitation current to [achieve a] maintain the selected optimum operating condition [operation mode] for [them] the synchronous machines and conserve energy in the facility.

2. (Original) The method of Claim 1, wherein the step of monitoring incoming power comprises the step of:

monitoring the power factor of the incoming power at a utility interface with the facility.

3. (Original) The method of Claim 1, wherein the step of monitoring incoming power comprises the step of:

monitoring voltage levels of the incoming power at a utility interface with the facility.

4. (Amended) The method of Claim 1, wherein the step of monitoring the operation of the synchronous machines [comprises] further includes the step of:

monitoring the status of the synchronous machines.

5. (Amended) The method of Claim 1, wherein the step of monitoring the operation of the synchronous machines [comprises] further includes the step of:

monitoring the loading of the synchronous machines.

6. (Amended) The method of Claim 1, wherein the step of monitoring the operation of the synchronous machines [comprises] further includes the step of:

monitoring the real power of the synchronous machines.

7. (Amended) The method of Claim 1, wherein the step of monitoring the operation of the synchronous machines [comprises] further includes the step of:

monitoring the reactive power of the synchronous machines.

8. (Cancel) The method of Claim 1, wherein the step of monitoring the operation of the synchronous machines comprises the step of:

forming a measure of the power capability of the synchronous machines; and

determining the present operating point of the synchronous machine with respect to the measures of its power capability.

9. (Amended) The method of Claim 1, wherein the step of selecting an optimum operating condition [operation mode] further comprises the step of:

selecting a constant power factor mode [as the operation mode of] for the synchronous machines.

10. (Amended) The method of Claim 1, wherein the step of selecting an optimum operating condition [operation mode] further comprises the step of:

selecting a constant voltage mode [as the operation mode of] for the synchronous machines.

11. (Amended) The method of Claim 1, wherein the step of selecting an [operation mode] optimum operating condition further comprises the step of:

selecting a constant reactive power mode [as the operation mode of] for the synchronous machines.

12. (Amended) A power control system for conserving energy in a facility having synchronous machines, comprising

sensor devices for monitoring the incoming power to the facility;

sensor devices for monitoring the reactive power demand of the facility;

a computer containing a programmed set of instructions including instructions for monitoring the operation of the synchronous machines in the facility, the instructions for monitoring the operation including instructions for the steps of:

forming a measure of the power capability of the synchronous machines; and

determining an overall power factor of the synchronous machines;

the [a computer containing a] programmed set of instructions further including instructions for selecting an optimum operating condition [operation mode] of the synchronous machines to bring the power factor to an optimum;

the programmed set of instructions further including instructions for selecting an optimum operating condition, including instructions for the step of adjusting excitation current [parameters] of the synchronous machines based on the determined overall power factor by performing the steps of:

when the determined overall power factor is leading, decreasing excitation current to the synchronous machines;

when the determined overall power factor is lagging, increasing excitation current to the synchronous machines;

when the determined overall power factor is neither leading nor lagging, repeating the step of determining the overall power factor of the synchronous machines; and

the computer further sending signals to the synchronous machines and adjusting excitation [parameters] current of the synchronous machines to achieve a selected [operation mode for them] optimum operating condition for the synchronous machines and conserve energy in the facility.

13. (Original) The power control system of Claim 12, wherein the sensor devices for monitoring incoming power comprise:

sensor devices for monitoring the power factor of the incoming power at a utility interface with the facility.

14. (Original) The power control system of Claim 12, wherein the sensor devices for monitoring incoming power comprise:

sensor devices for monitoring voltage levels of the incoming power at a utility interface with the facility.

15. (Original) The power control system of Claim 12, wherein the sensor devices for monitoring the operation of the synchronous machines comprise:

sensor devices for monitoring the status of the synchronous machines.

16. (Original) The power control system of Claim 12, wherein the set of instructions of the computer for monitoring the operation of the synchronous machines comprises:

instructions for causing the computer to monitor the loading of the synchronous machines.

17. (Original) The power control system of Claim 12, wherein the set of instructions for the computer for monitoring the operation of the synchronous machines includes [comprises]:

instructions for causing the computer to monitor the real power of the synchronous machines.

18. (Original) The power control system of Claim 12, wherein the set of instruction of the computer for monitoring the operation of the synchronous machines includes [comprises]:

instructions for causing the computer to monitor the reactive power of the synchronous machines.

19. (Cancel) The power control system of Claim 12, wherein the set of instructions of the computer for monitoring the operation of the synchronous machines comprises:

instructions for causing the computer to form a measure of the power capability of the synchronous machines; and

instructions for causing the computer to determine the present operating point of the synchronous machine with respect to the measures of its power capability.

20. The power control system of Claim 12 [1], wherein the set of instructions of the computer for selecting an optimum operating condition [operation mode] further comprises:

instructions for causing the computer to select a constant power factor mode as the operation mode of the synchronous machines.

21. The power control system of Claim 12, wherein the set of instructions of the computer for selecting an optimum operating condition [operation mode] further comprises:

instructions for causing the computer to select a constant voltage mode as the operation mode of the synchronous machine.

22. The power control system of Claim 12, wherein the set of instructions of the computer for selecting an optimum operating condition [operation mode] further comprises:

instructions for causing the computer to select a constant reactive power mode as the operation mode of the synchronous machines.

23. (Amended) A method of supporting power supply bus voltage in a facility having motors and synchronous machines in connection with starting a motor in the facility, comprising the steps of:

monitoring the operation of the synchronous machines in the facility to cause the power factor of the machines to obtain a selected optimum operating condition to conserve energy in the facility;

detecting that a motor has been switched to a state for starting;

increasing the field current of the running synchronous machines prior to start of the motor to produce [reaction] reactive power; [and]

allowing a specific time interval to begin;

maintaining the field current of the synchronous machines at the increased field current level to produce reactive power until [a] the specified time interval elapses [condition occurs.];

when the specific time interval elapses returning to the step of monitoring the operation of the synchronous machines in the facility.

24. (Cancel) The method of Claim 23, wherein the specified condition is the motor being started having obtained a specified operating speed.

25. (Amended) The method of Claim 23, wherein the specified time interval [condition] is a specified time elapsing without the motor having started.

26. (Cancel) The method of Claim 23, wherein the step of increasing comprises the step of:

increasing the field current to a plurality of the synchronous machines prior to start of the motor to produce reactive power.

27. (Amended) The method of Claim 23, wherein the step of increasing the field current comprises the step of:

increasing the field current of the running synchronous machines prior to start of the motor to produce reactive power in excess of its rated power.

28. (Amended) The method of Claim 23, wherein the step of increasing the field current comprises the step of:

increasing the field current of the running synchronous machines prior to start of the motor to produce reactive power to a range of from 100% to 150% of its rated power.

29. (Cancel) A method of supporting power supply bus voltage in a facility having transformers and synchronous machines in connection with energizing of a transformer in the facility, comprising the steps of:

increasing the field current of the running synchronous machines prior to energizing the transformer to produce reactive power.

30. (Amended) A power control system for a facility having motors and synchronous machines and having support of bus voltage in connection with starting of a motor in the facility, comprising:

a computer containing a programmed set of instructions including instructions causing the computer to perform the steps of:

monitoring the operation of the synchronous machines in the facility to cause the power factor of the machines to obtain a selected optimum operating condition to conserve energy in the facility;

detecting that a motor has been switched to a state for starting;

increasing the field current of the running synchronous machines prior to start of the motor to produce reactive power;

allowing a specific time interval to begin;

maintaining the field current of the synchronous machines at the increased field current level to produce reactive power until [a] the specified time interval elapses;

when the specific time interval elapses returning to the step of monitoring the operation of the synchronous machines in the facility; and

causing the field current of the running synchronous machines to increase for the synchronous machines to produce reactive power [the computer causing the field current to the synchronous machine to be maintained at the increased level to produce reactive power] until the [a] specified time interval elapses [condition occurs].

31. (Cancel) The power control system of Claim 30 wherein the specified condition is the motor being started having obtained a specified operating speed.

32. (Amended) The power control system of Claim 30, wherein the specified time interval [condition] is a specified time elapsing without the motor having started.